

Sample: 2(89)

Grain 1:

Grain colour/transparency:

- Green/Transparent

Grain shape/texture:

- Sub-rounded
- Sub-spherical
- Smooth, conchoidal fractures, polished

Modal abundance and grain size (estimated):

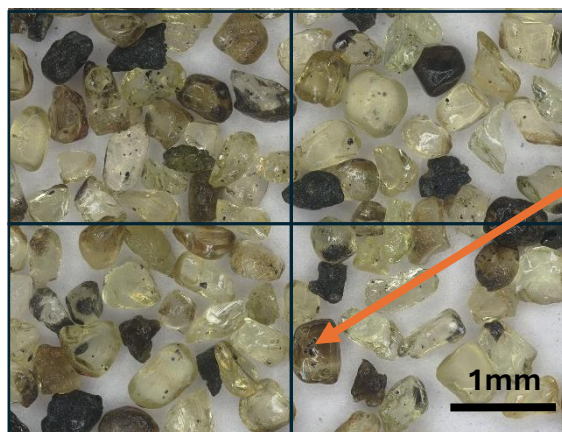
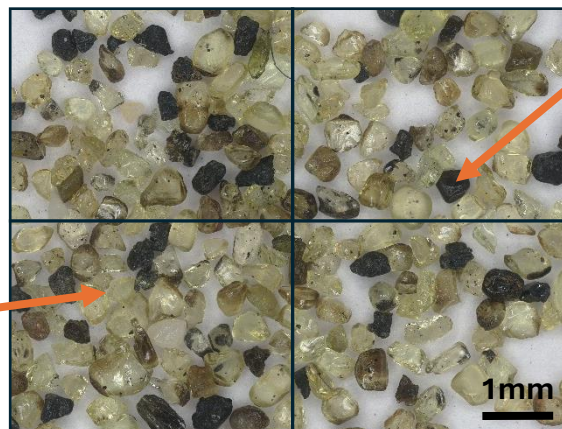
- ~70%, 0.7mm

Mineral/rock identification:

- Olivine (mineral)

Other features:

- Grains demonstrate euhedral crystal shape of olivine
- Some olivine grains have small black inclusions of basalt



Grain 2:

Grain colour/transparency:

- Black/Opaque

Grain shape/texture:

- Sub-rounded
- Sub-spherical
- Mostly pitted surface. Some polished edges. Sharp fractures.

Modal abundance and grain size (estimated):

- ~30%, 0.3mm

Mineral/rock identification:

- Basalt (rock)

Other features:

- Pitted surface shows signs of weathering to buff coloured mineral (unknown mineralogy)

Grain 3:

Grain colour/transparency:

- Brown with green stripe/translucent

Grain shape/texture:

- Rounded
- Spherical
- Polished

Modal abundance and grain size (estimated):

- <1%, 0.3mm

Mineral/rock identification:

- Intergrown olivine of different compositions

Other features:

- Pitted surface shows signs of weathering to buff coloured mineral (unknown mineralogy)

Images courtesy of Jordan Poole
The University of Liverpool

Summary:

Sediment maturity:

- **Texturally moderately mature:** the grains are generally rounded and sub-spherical with some polished edges. **Mineralogically mature:** primarily only two grain types – olivine and basalt.

Provenance:

- **Moderately proximal to the source:** olivine grains are euhedral, but basalt grains rounded.

Transport history:

- Non-abraded surfaces demonstrate likely **fluvial transport**. Most grains similar size 0.5mm: transport via consistent flow velocity.

Source:

Kilauea, Hawaii

Beach sand derived from local volcanic rocks.

Formal grain sample name:

Well-sorted, mineralogically mature and texturally moderately mature sand.